FIG. 1

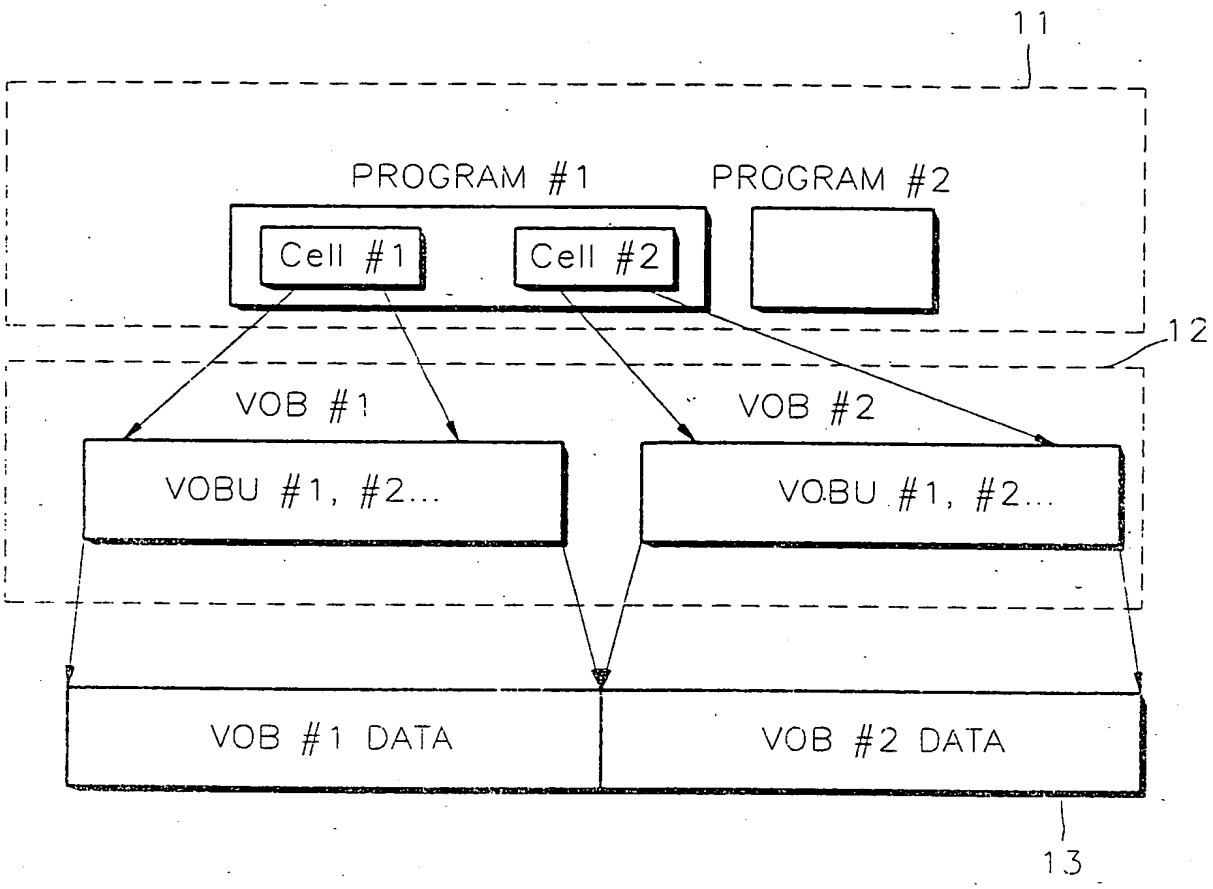
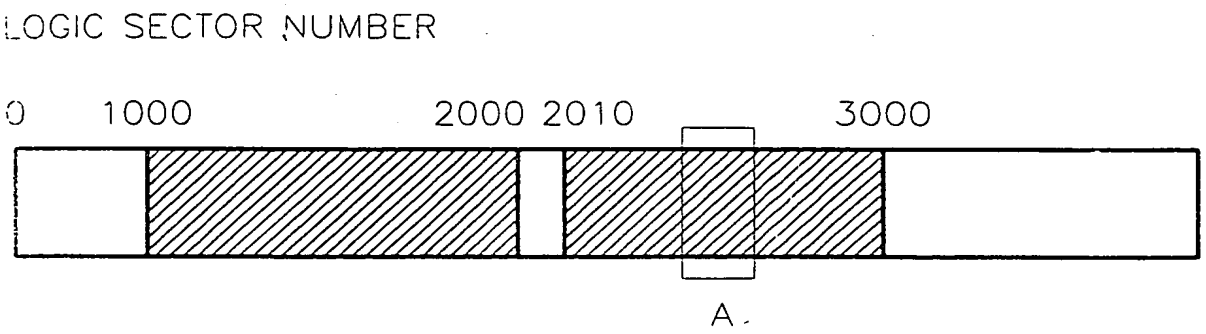
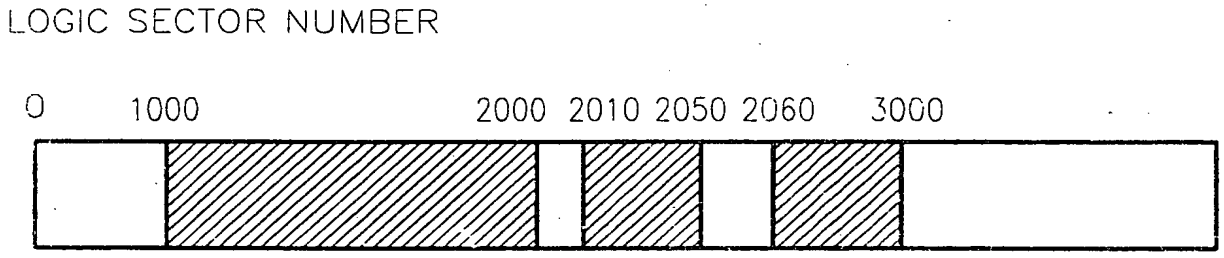

11
PROGRAM #1
PROGRAM #2
Cell #1
Cell #2
12
VOB #1
VOB #2
VOBU #1, #2...
VOBU #1, #2...
VOB #1 DATA
VOB #2 DATA
13

FIG. 2



START POSITION	LENGTH OF DATA
1000	1000
2010	990

FIG. 3



START POSITION	LENGTH OF DATA
1000	1000
2010	40
2060	940

FIG. 4

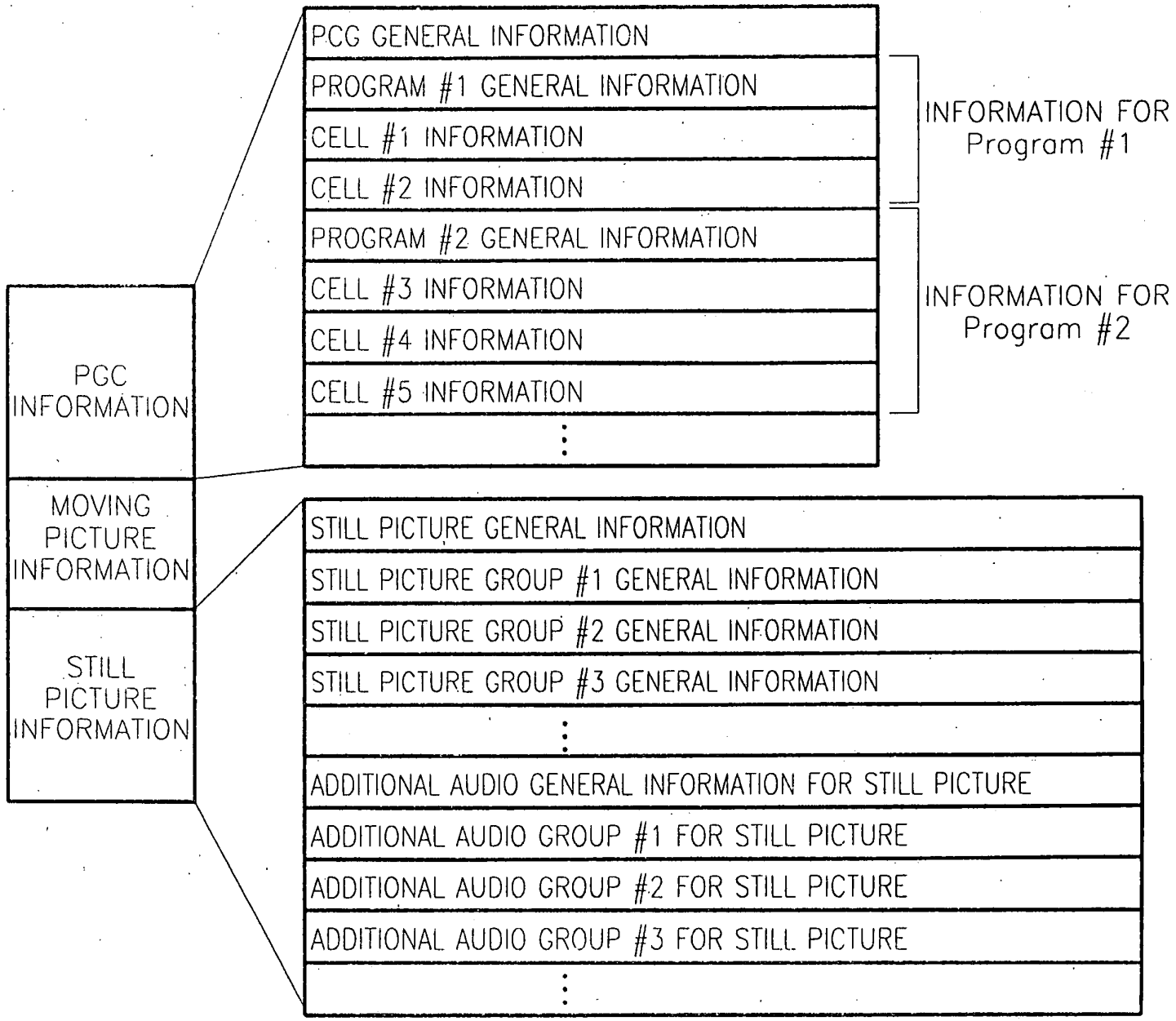

PGC INFORMATION
MOVING PICTURE INFORMATION
STILL PICTURE INFORMATION
PCG GENERAL INFORMATION
PROGRAM #1 GENERAL INFORMATION
CELL #1 INFORMATION
CELL #2 INFORMATION
PROGRAM #2 GENERAL INFORMATION
CELL #3 INFORMATION
CELL #4 INFORMATION
CELL #5 INFORMATION
INFORMATION FOR Program #1
INFORMATION FOR Program #2
STILL PICTURE GENERAL INFORMATION
STILL PICTURE GROUP #1 GENERAL INFORMATION
STILL PICTURE GROUP #2 GENERAL INFORMATION
STILL PICTURE GROUP #3 GENERAL INFORMATION
ADDITIONAL AUDIO GENERAL INFORMATION FOR STILL PICTURE
ADDITIONAL AUDIO GROUP #1 FOR STILL PICTURE
ADDITIONAL AUDIO GROUP #2 FOR STILL PICTURE
ADDITIONAL AUDIO GROUP #3 FOR STILL PICTURE

FIG. 5

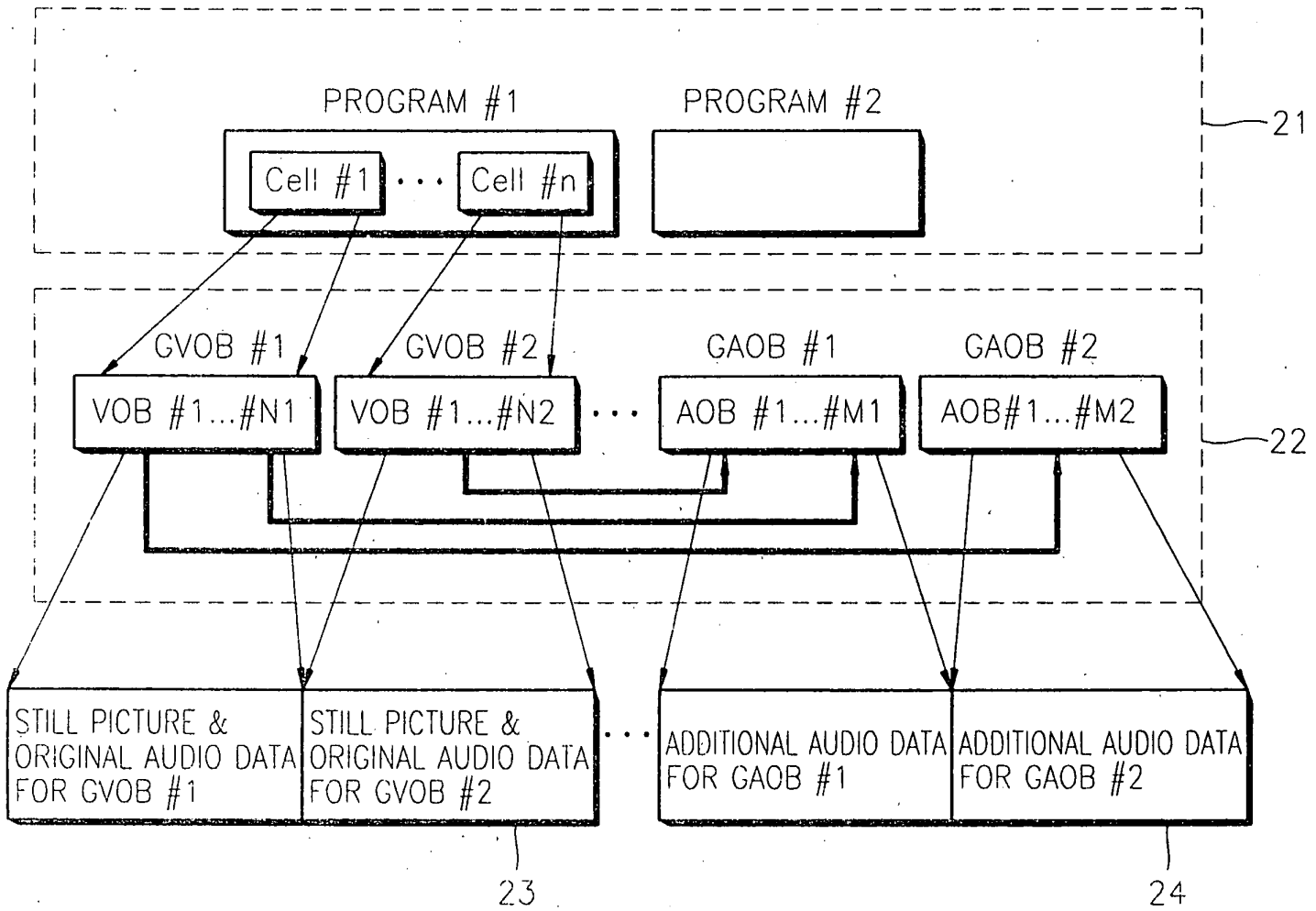

PROGRAM #1
PROGRAM #2
Cell #1
Cell #n
21
GVOB #1
GVOB #2
GAOB #1
GAOB #2
VOB #1...#N1
VOB #1...#N2
AOB #1...#M1
AOB#1...#M2
22
STILL PICTURE & ORIGINAL AUDIO DATA FOR GVOB #1
STILL PICTURE & ORIGINAL AUDIO DATA FOR GVOB #2
ADDITIONAL AUDIO DATA FOR GAOB #1
ADDITIONAL AUDIO DATA FOR GAOB #2
23
24

FIG. 6

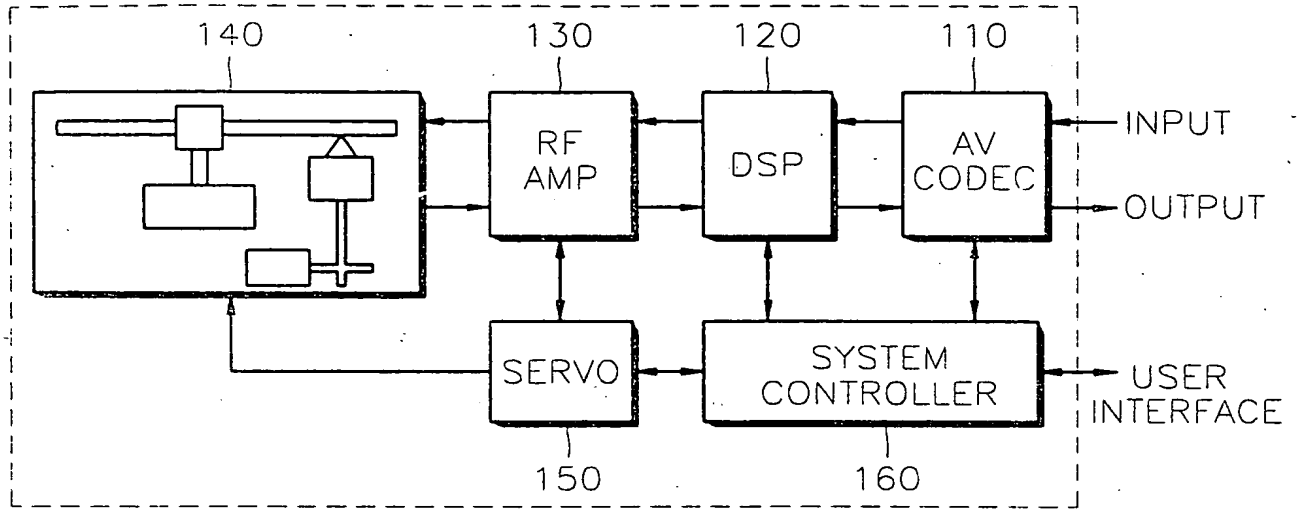

140
130
120
110
RF AMP
DSP
AV CODEC
INPUT
OUTPUT
SERVO
SYSTEM CONTROLLER
USER INTERFACE
150
160

FIG. 7

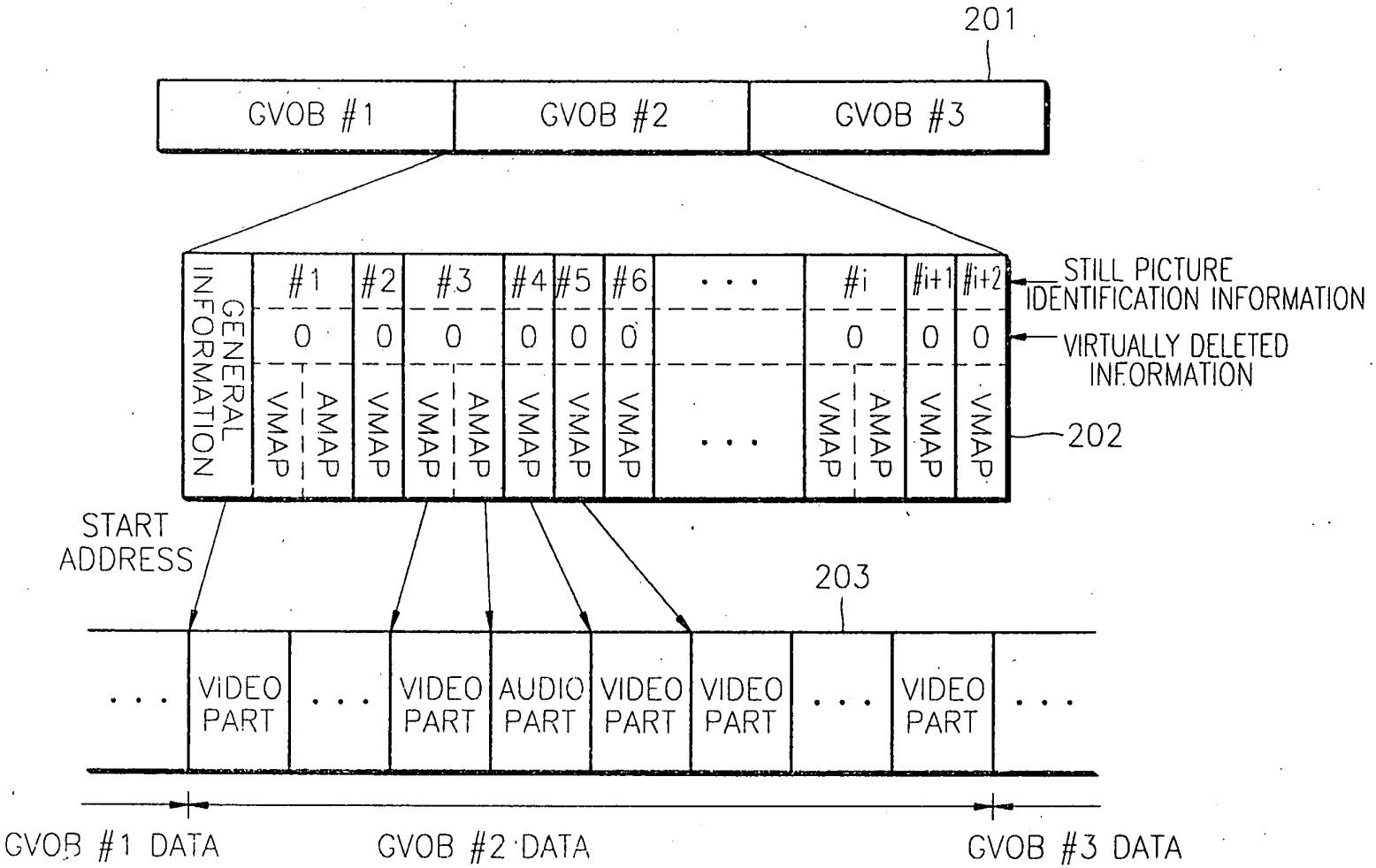

201
GVOB #1
GVOB #2
GVOB #3
GENERAL INFORMATION
#1
#2
#3
#4
#5
#6
#i
#i+1
#i+2
STILL PICTURE IDENTIFICATION INFORMATION
0
VIRTUALLY DELETED INFORMATION
VMAP
AMAP
202
START ADDRESS
203
VIDEO PART
AUDIO PART
GVOB #1 DATA
GVOB #2 DATA
GVOB #3 DATA

FIG. 8

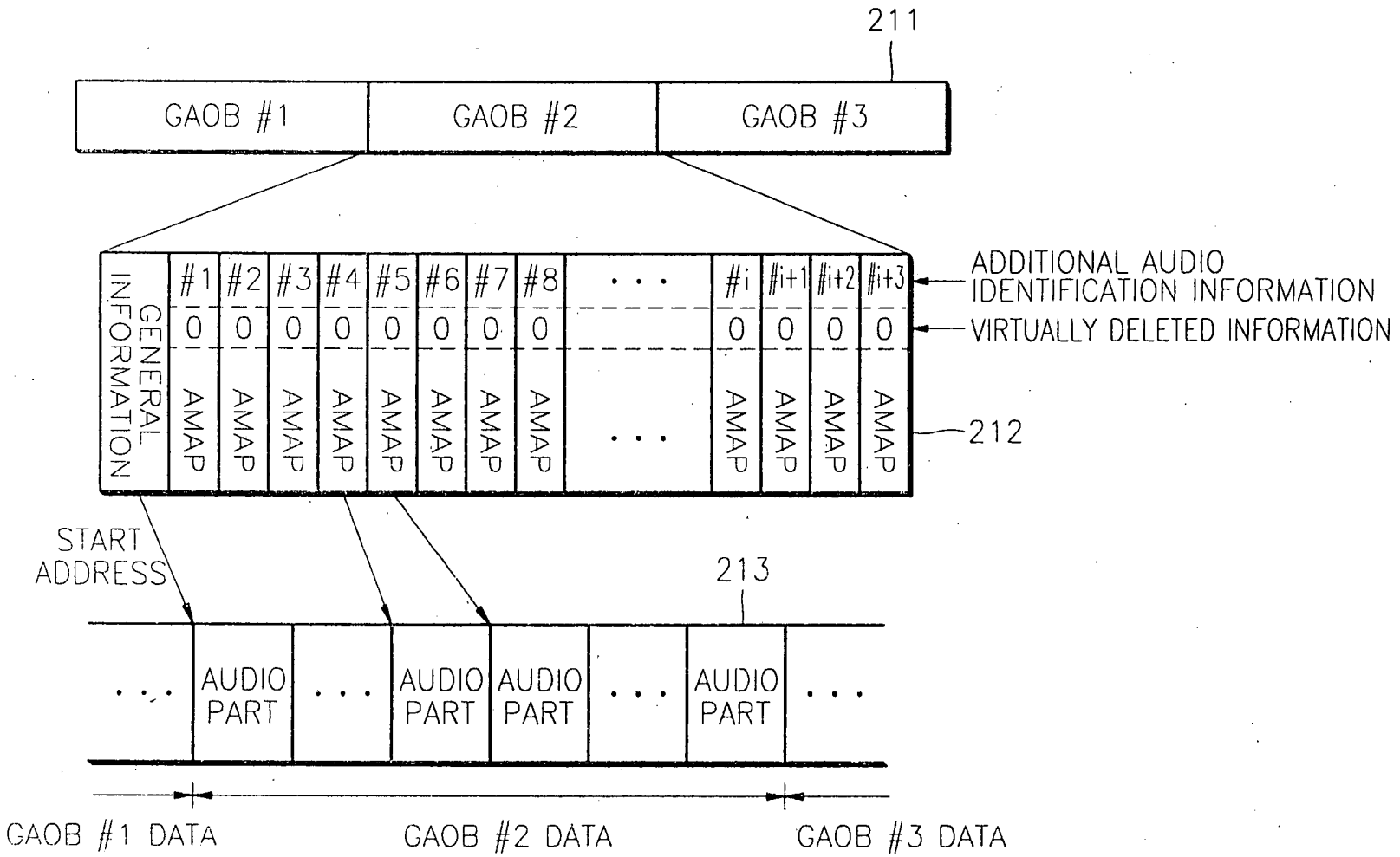

211
GAOB #1
GAOB #2
GAOB #3
GENERAL INFORMATION
#1 #2 #3 #4 #5 #6 #7 #8 . . . #i #i+1 #i+2 #i+3
0 0 0 0 0 0 0 0 0 0 0 0
AMAP AMAP AMAP AMAP AMAP AMAP AMAP AMAP . . . AMAP AMAP AMAP AMAP
ADDITIONAL AUDIO IDENTIFICATION INFORMATION
VIRTUALLY DELETED INFORMATION
212
START ADDRESS
213
. . . AUDIO PART . . . AUDIO PART AUDIO PART . . . AUDIO PART . . .
GAOB #1 DATA
GAOB #2 DATA
GAOB #3 DATA

FIG. 9

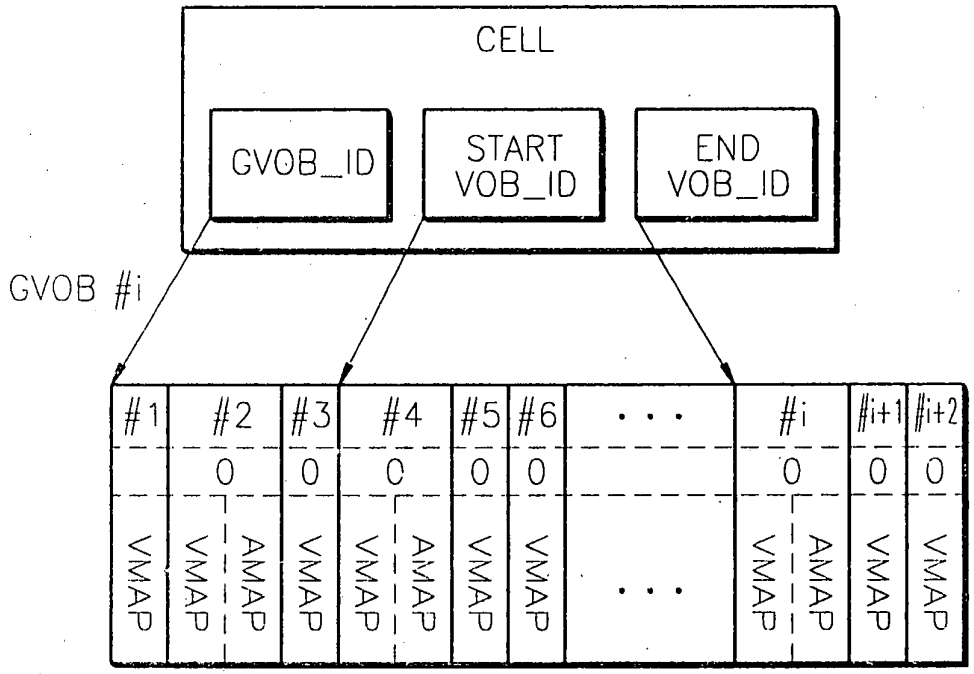

CELL
GVOB_ID
START VOB_ID
END VOB_ID
GVOB #i
#1
#2
#3
#4
#5
#6
• • •
#i
#i+1
#i+2
0
VMAP
AMAP

FIG. 10

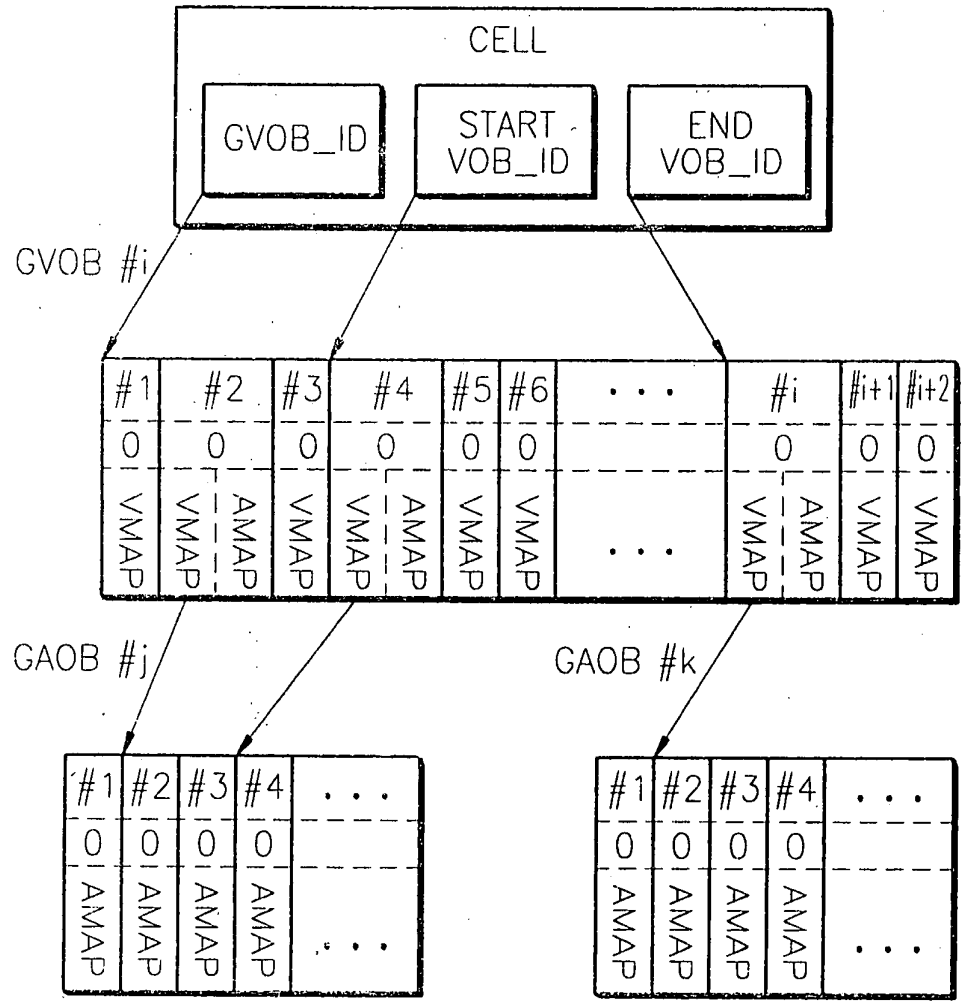

CELL
GVOB_ID
START VOB_ID
END VOB_ID
GVOB #i
#1
#2
#3
#4
#5
#6
#i
#i+1
#i+2
0
VMAP
AMAP
GAOB #j
GAOB #k
AMAP

FIG. 11

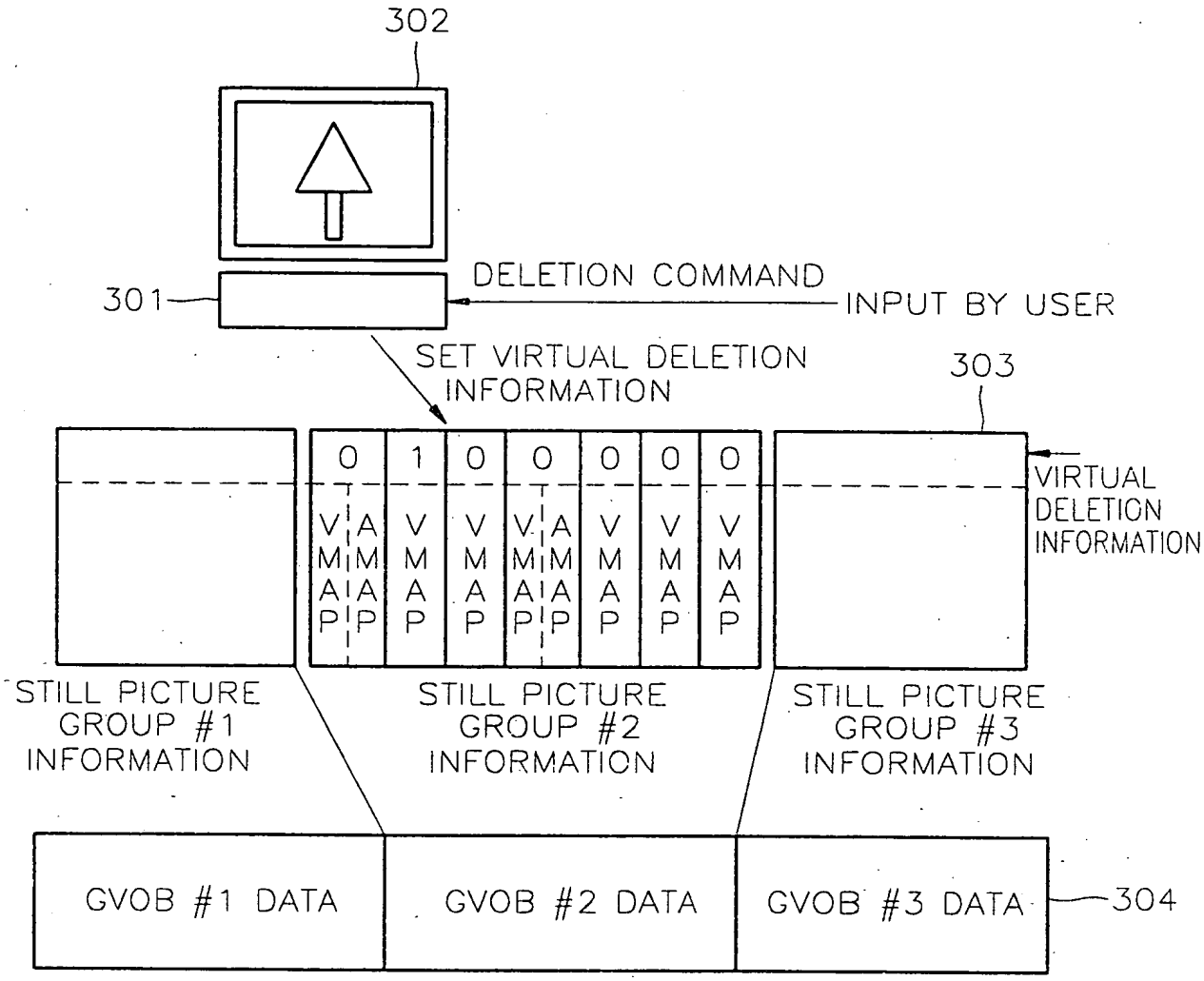

302
301
DELETION COMMAND
INPUT BY USER
SET VIRTUAL DELETION INFORMATION
303
0 1 0 0 0 0 0
VMAP AMAP VMAP VMAP VMAP AMAP VMAP VMAP VMAP
VIRTUAL DELETION INFORMATION
STILL PICTURE GROUP #1 INFORMATION
STILL PICTURE GROUP #2 INFORMATION
STILL PICTURE GROUP #3 INFORMATION
GVOB #1 DATA
GVOB #2 DATA
GVOB #3 DATA
304

FIG. 12

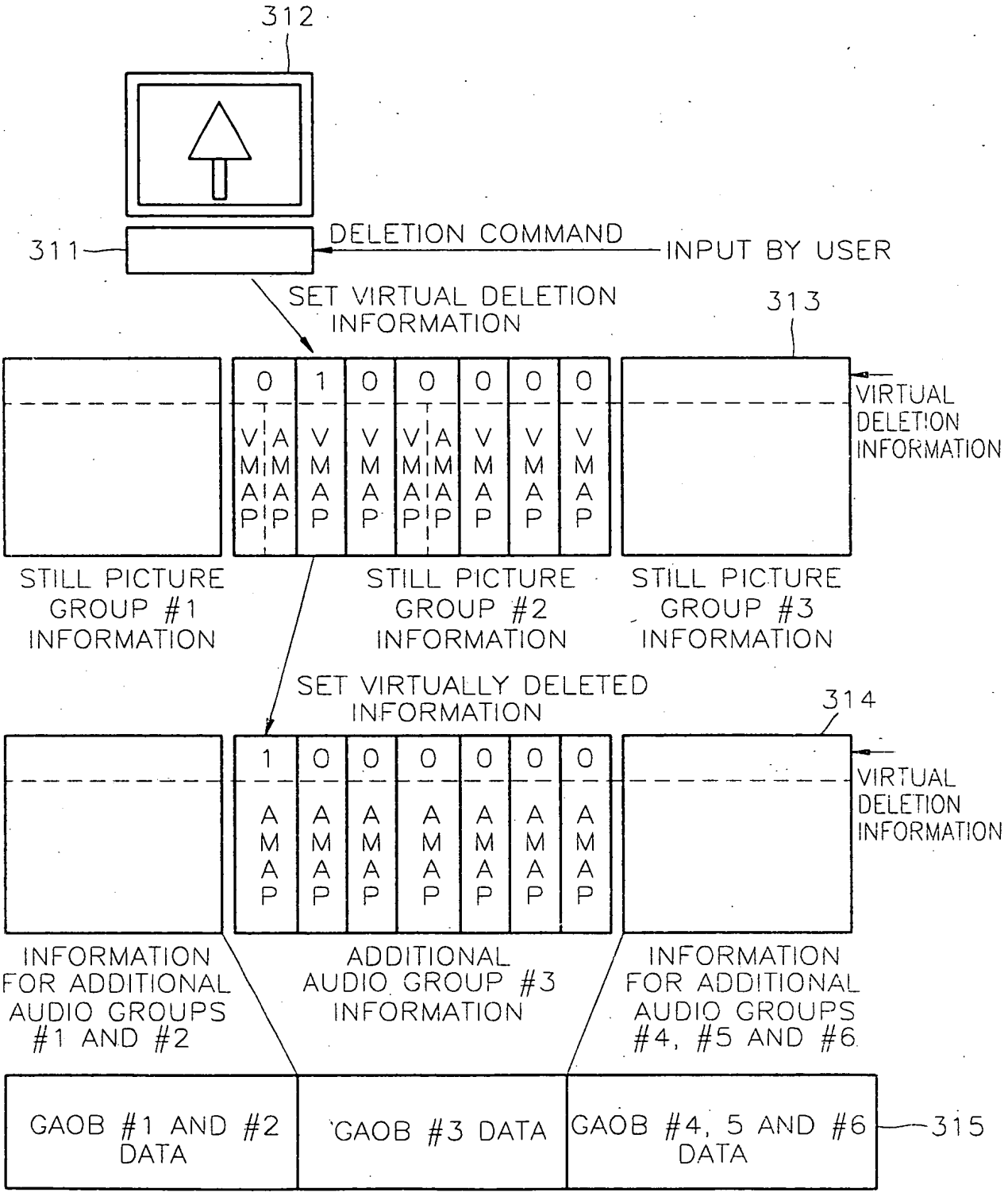

312
311
DELETION COMMAND
INPUT BY USER
SET VIRTUAL DELETION INFORMATION
313
0 1 0 0 0 0 0
VMAP AMAP VMAP VMAP VMAP AMAP VMAP VMAP VMAP
VIRTUAL DELETION INFORMATION
STILL PICTURE GROUP #1 INFORMATION
STILL PICTURE GROUP #2 INFORMATION
STILL PICTURE GROUP #3 INFORMATION
SET VIRTUALLY DELETED INFORMATION
314
1 0 0 0 0 0 0
AMAP AMAP AMAP AMAP AMAP AMAP AMAP
VIRTUAL DELETION INFORMATION
INFORMATION FOR ADDITIONAL AUDIO GROUPS #1 AND #2
ADDITIONAL AUDIO GROUP #3 INFORMATION
INFORMATION FOR ADDITIONAL AUDIO GROUPS #4, #5 AND #6
GAOB #1 AND #2 DATA
GAOB #3 DATA
GAOB #4, 5 AND #6 DATA
315

FIG. 13

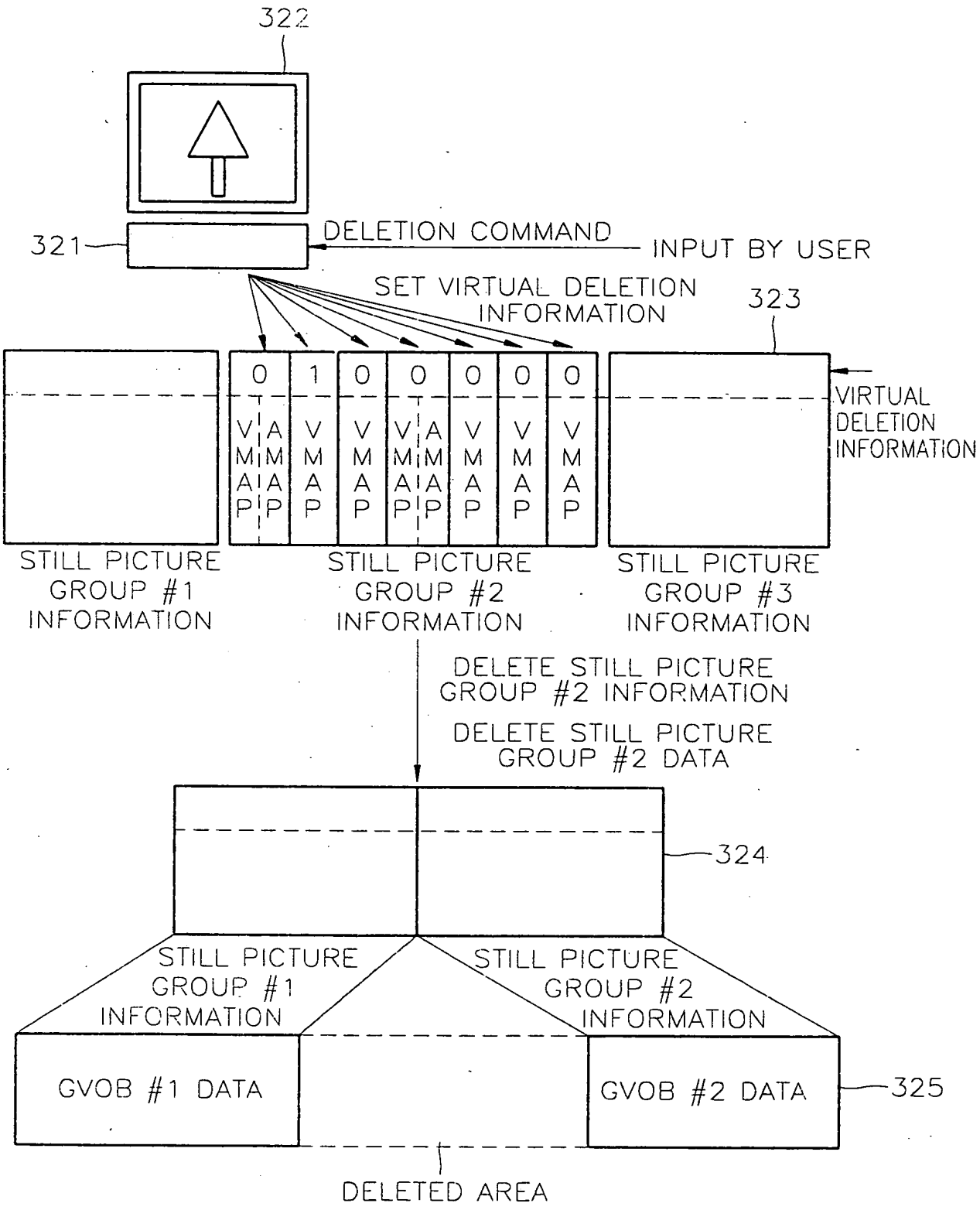

322
321
DELETION COMMAND
INPUT BY USER
SET VIRTUAL DELETION INFORMATION
323
0 1 0 0 0 0 0
VMAP AMAP VMAP VMAP VMAP AMAP VMAP VMAP VMAP
VIRTUAL DELETION INFORMATION
STILL PICTURE GROUP #1 INFORMATION
STILL PICTURE GROUP #2 INFORMATION
STILL PICTURE GROUP #3 INFORMATION
DELETE STILL PICTURE GROUP #2 INFORMATION
DELETE STILL PICTURE GROUP #2 DATA
324
STILL PICTURE GROUP #1 INFORMATION
STILL PICTURE GROUP #2 INFORMATION
GVOB #1 DATA
GVOB #2 DATA
325
DELETED AREA

FIG. 14

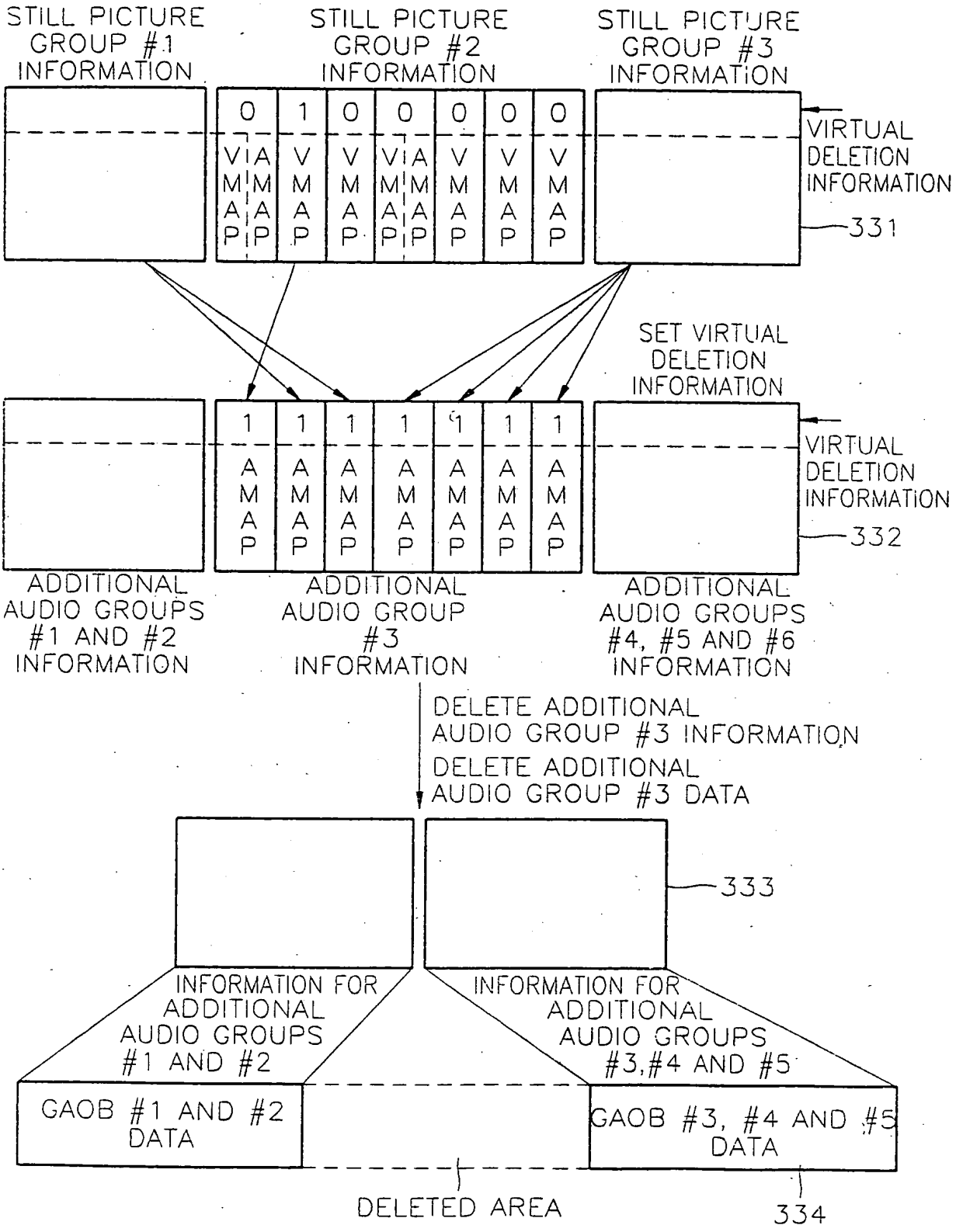

STILL PICTURE GROUP #1 INFORMATION
STILL PICTURE GROUP #2 INFORMATION
STILL PICTURE GROUP #3 INFORMATION
0 1 0 0 0 0 0
VMAP AMAP VMAP VMAP VMAP AMAP VMAP VMAP VMAP VMAP
VIRTUAL DELETION INFORMATION
331
SET VIRTUAL DELETION INFORMATION
1 1 1 1 1 1 1
AMAP AMAP AMAP AMAP AMAP AMAP AMAP
VIRTUAL DELETION INFORMATION
332
ADDITIONAL AUDIO GROUPS #1 AND #2 INFORMATION
ADDITIONAL AUDIO GROUP #3 INFORMATION
ADDITIONAL AUDIO GROUPS #4, #5 AND #6 INFORMATION
DELETE ADDITIONAL AUDIO GROUP #3 INFORMATION
DELETE ADDITIONAL AUDIO GROUP #3 DATA
333
INFORMATION FOR ADDITIONAL AUDIO GROUPS #1 AND #2
INFORMATION FOR ADDITIONAL AUDIO GROUPS #3,#4 AND #5
GAOB #1 AND #2 DATA
GAOB #3, #4 AND #5 DATA
DELETED AREA
334

FIG. 15

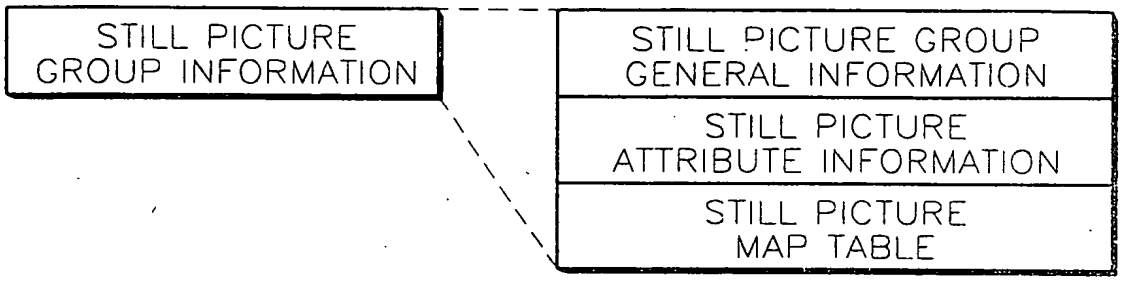


FIG. 16

	Contents	Number of Bytes
	Reserved	2 bytes
GVOB_ID	VOB Group ID	2 bytes
GVOB_S_ADR	Start address of VOB Group	4 bytes
GVOB_Ns	Number of Video Parts	1 byte
GVOB_Ds	Number of Virtually deleted Video Parts	1 byte

FIG. 17

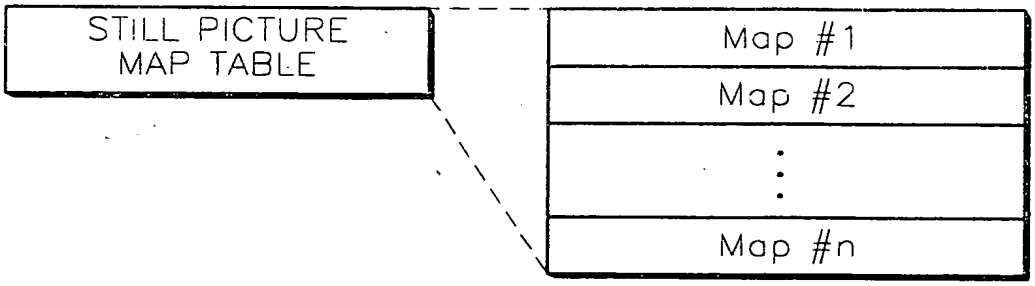


FIG. 18

	Contents	Number of Bytes
MAP_TY	Map type	1 bit
VOB_ID	VOB ID	7 bits
V_DELETE	Virtual Deleted Flag	1 bit
V_PART_SZ	Size of Video part	1 byte
GAOB_ID	GAOB ID for after_recorded audio	12 bits
AOB_ID	AOB ID for after_recorded audio	1 byte

FIG. 19

	Contents	Number of Bytes
MAP_TY	Map type	1 bit
	Reserved	7 bits
A_PBTM	Playback Time of Audio	2 bytes
A_PART SZ	Size of Audio part	2 bytes

FIG. 20

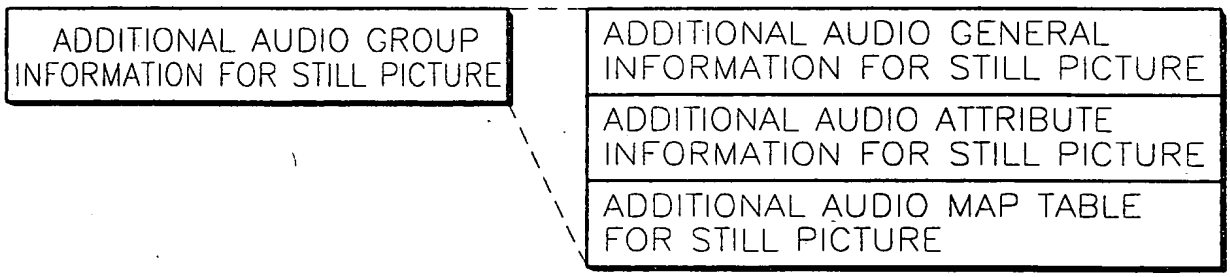


FIG. 21

	Contents	Number of Bytes
	Reserved	2 bytes
GAOB_ID	AOB Group ID	2 bytes
GAOB_S_ADR	Start address of AOB Group	4 bytes
GAOB_Ns	Number of Audio Parts	1 byte

FIG. 22

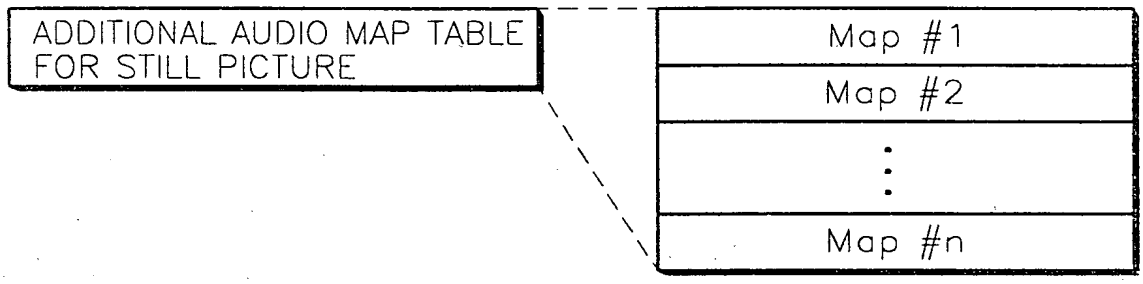


FIG. 23

	Contents	Number of Bytes
AOB_ID	AOB ID	7 byte
A_DELETE	Virtual Deleted Flag	1 bit
A_PBTM	Playback Time of Audio	2 bytes
A_PART_SZ	Size of Audio Part	2 bytes

FIG. 24

	Contents	Number of Bytes
S_GVOB_ID	VOB Group ID for Still Picture	2 bytes
S_VOB_ID	VOB ID for Start Still Picture	1 byte
E_VOB_ID	VOB ID for END Still Picture	1 byte
	Reserved	5 bytes

FIG. 25A

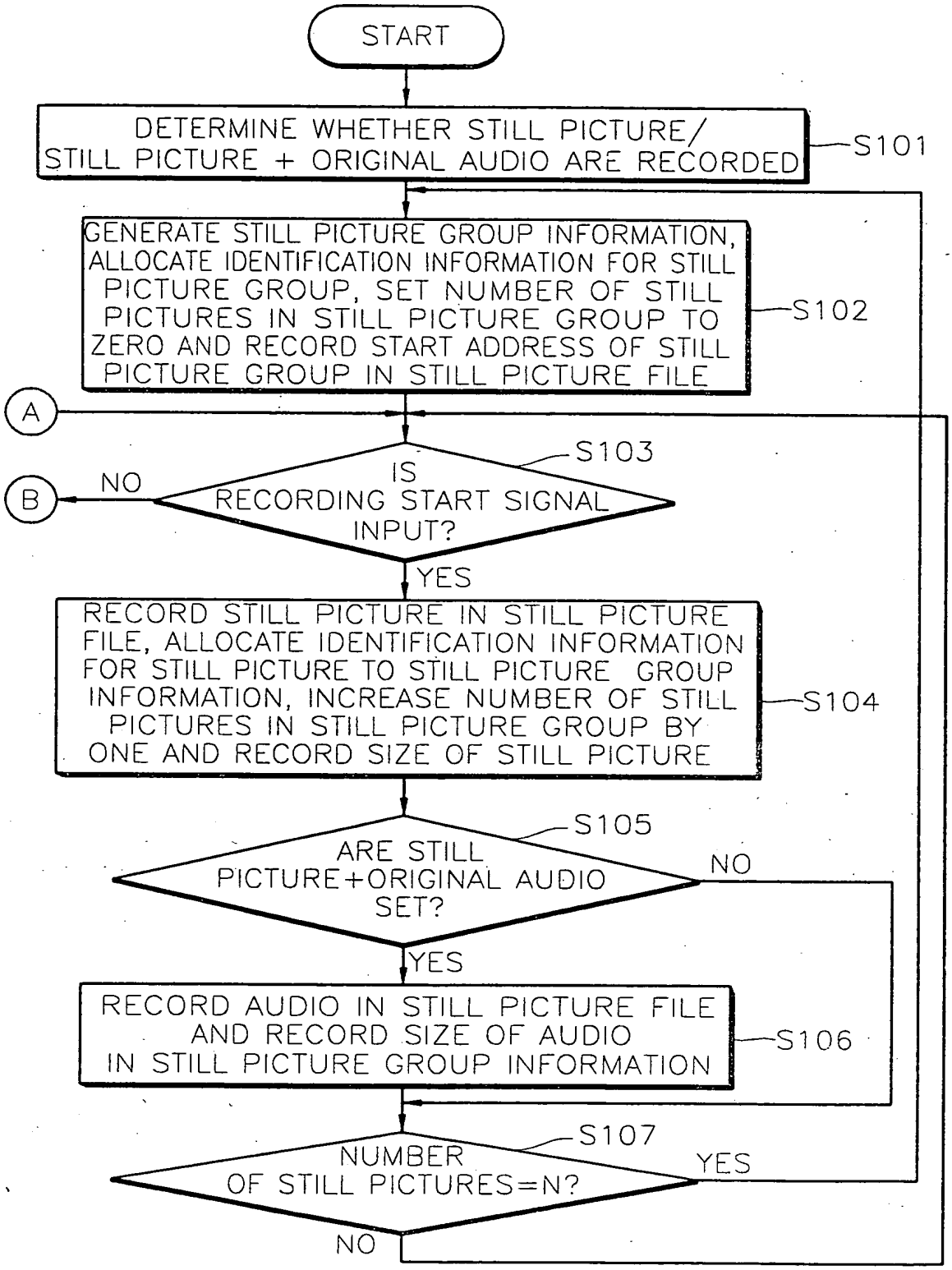

START
DETERMINE WHETHER STILL PICTURE/ STILL PICTURE + ORIGINAL AUDIO ARE RECORDED
S101
GENERATE STILL PICTURE GROUP INFORMATION, ALLOCATE IDENTIFICATION INFORMATION FOR STILL PICTURE GROUP, SET NUMBER OF STILL PICTURES IN STILL PICTURE GROUP TO ZERO AND RECORD START ADDRESS OF STILL PICTURE GROUP IN STILL PICTURE FILE
S102
A
B
S103
IS RECORDING START SIGNAL INPUT?
NO
YES
RECORD STILL PICTURE IN STILL PICTURE FILE, ALLOCATE IDENTIFICATION INFORMATION FOR STILL PICTURE TO STILL PICTURE GROUP INFORMATION, INCREASE NUMBER OF STILL PICTURES IN STILL PICTURE GROUP BY ONE AND RECORD SIZE OF STILL PICTURE
S104
S105
ARE STILL PICTURE+ORIGINAL AUDIO SET?
NO
YES
RECORD AUDIO IN STILL PICTURE FILE AND RECORD SIZE OF AUDIO IN STILL PICTURE GROUP INFORMATION
S106
S107
NUMBER OF STILL PICTURES=N?
YES
NO

FIG. 25B

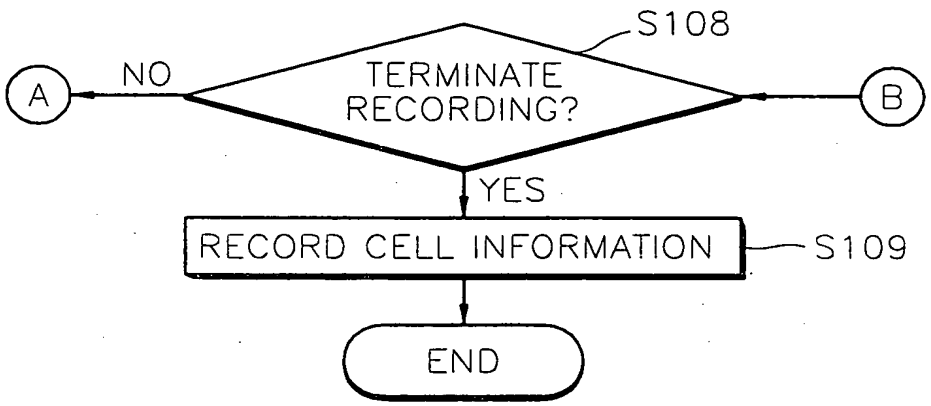

S108
NO
TERMINATE RECORDING?
A
B
YES
RECORD CELL INFORMATION
S109
END

FIG. 26

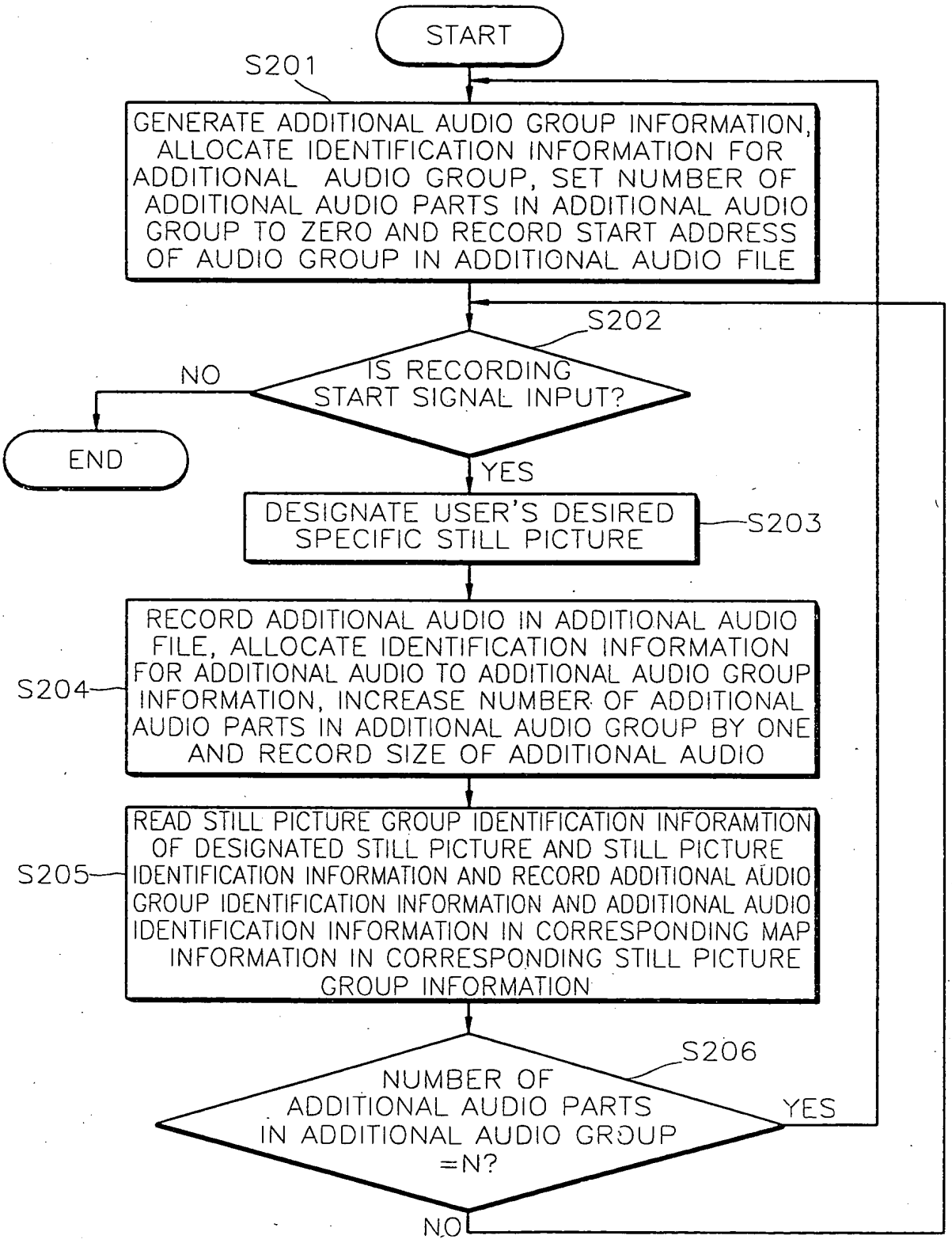

START
S201
GENERATE ADDITIONAL AUDIO GROUP INFORMATION, ALLOCATE IDENTIFICATION INFORMATION FOR ADDITIONAL AUDIO GROUP, SET NUMBER OF ADDITIONAL AUDIO PARTS IN ADDITIONAL AUDIO GROUP TO ZERO AND RECORD START ADDRESS OF AUDIO GROUP IN ADDITIONAL AUDIO FILE
S202
IS RECORDING START SIGNAL INPUT?
NO
END
YES
DESIGNATE USER'S DESIRED SPECIFIC STILL PICTURE
S203
RECORD ADDITIONAL AUDIO IN ADDITIONAL AUDIO FILE, ALLOCATE IDENTIFICATION INFORMATION FOR ADDITIONAL AUDIO TO ADDITIONAL AUDIO GROUP INFORMATION, INCREASE NUMBER OF ADDITIONAL AUDIO PARTS IN ADDITIONAL AUDIO GROUP BY ONE AND RECORD SIZE OF ADDITIONAL AUDIO
S204
READ STILL PICTURE GROUP IDENTIFICATION INFORAMTION OF DESIGNATED STILL PICTURE AND STILL PICTURE IDENTIFICATION INFORMATION AND RECORD ADDITIONAL AUDIO GROUP IDENTIFICATION INFORMATION AND ADDITIONAL AUDIO IDENTIFICATION INFORMATION IN CORRESPONDING MAP INFORMATION IN CORRESPONDING STILL PICTURE GROUP INFORMATION
S205
S206
NUMBER OF ADDITIONAL AUDIO PARTS IN ADDITIONAL AUDIO GROUP =N?
YES
NO

FIG. 27

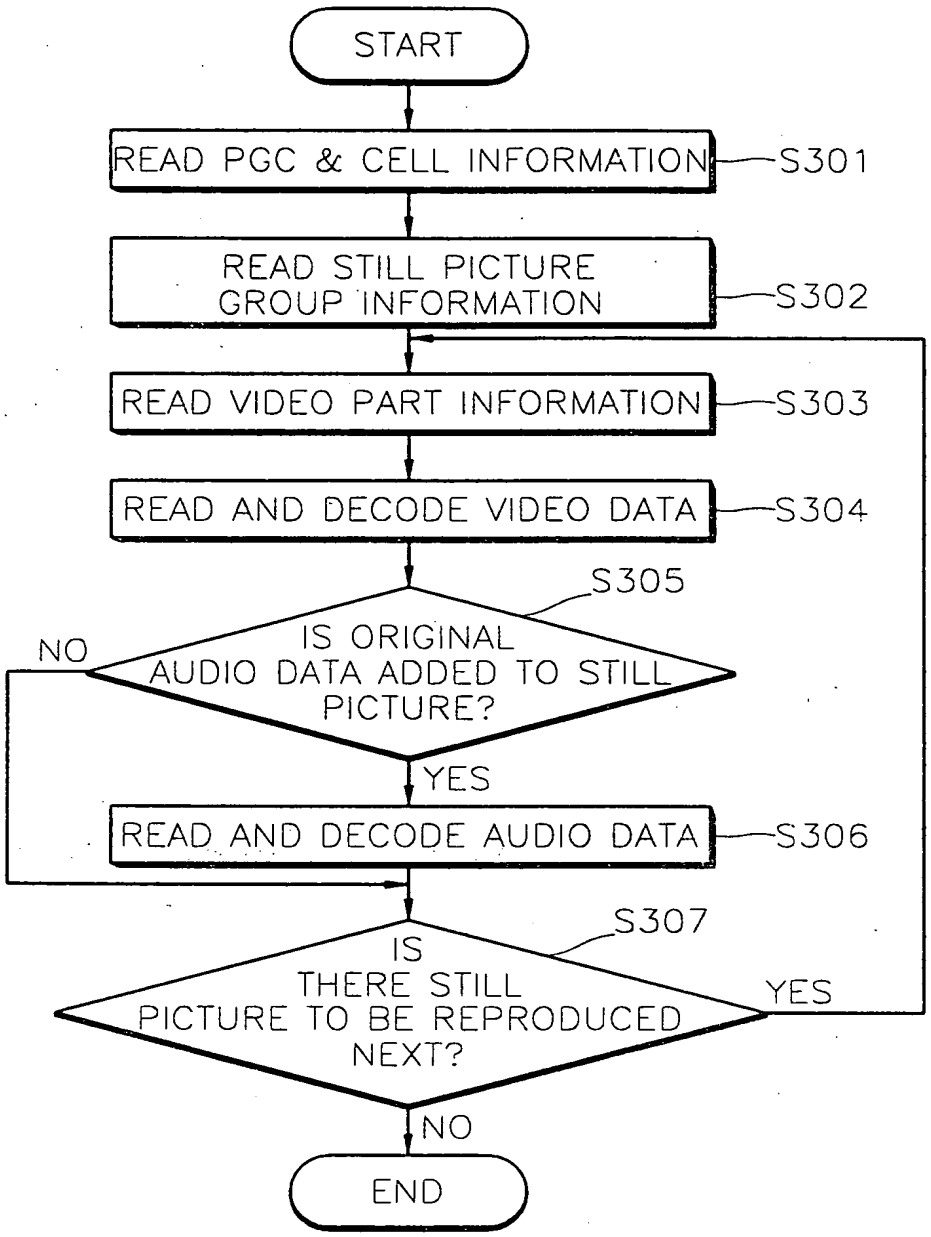

START
READ PGC & CELL INFORMATION
S301
READ STILL PICTURE GROUP INFORMATION
S302
READ VIDEO PART INFORMATION
S303
READ AND DECODE VIDEO DATA
S304
S305
IS ORIGINAL AUDIO DATA ADDED TO STILL PICTURE?
NO
YES
READ AND DECODE AUDIO DATA
S306
S307
IS THERE STILL PICTURE TO BE REPRODUCED NEXT?
YES
NO
END

FIG. 28A

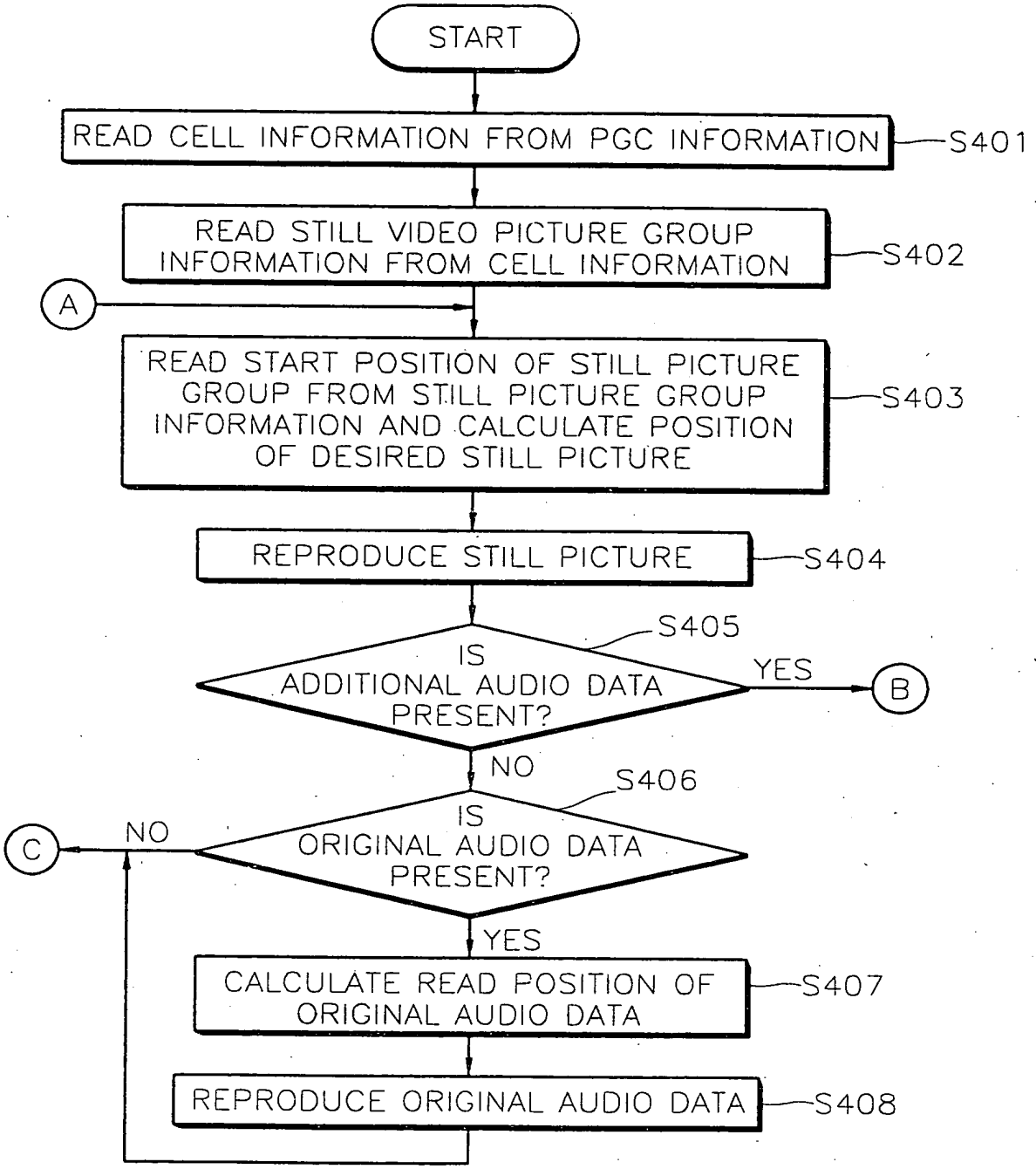

START
READ CELL INFORMATION FROM PGC INFORMATION
S401
READ STILL VIDEO PICTURE GROUP INFORMATION FROM CELL INFORMATION
S402
A
READ START POSITION OF STILL PICTURE GROUP FROM STILL PICTURE GROUP INFORMATION AND CALCULATE POSITION OF DESIRED STILL PICTURE
S403
REPRODUCE STILL PICTURE
S404
S405
IS ADDITIONAL AUDIO DATA PRESENT?
YES
B
NO
S406
IS ORIGINAL AUDIO DATA PRESENT?
C
NO
YES
CALCULATE READ POSITION OF ORIGINAL AUDIO DATA
S407
REPRODUCE ORIGINAL AUDIO DATA
S408

FIG. 28B

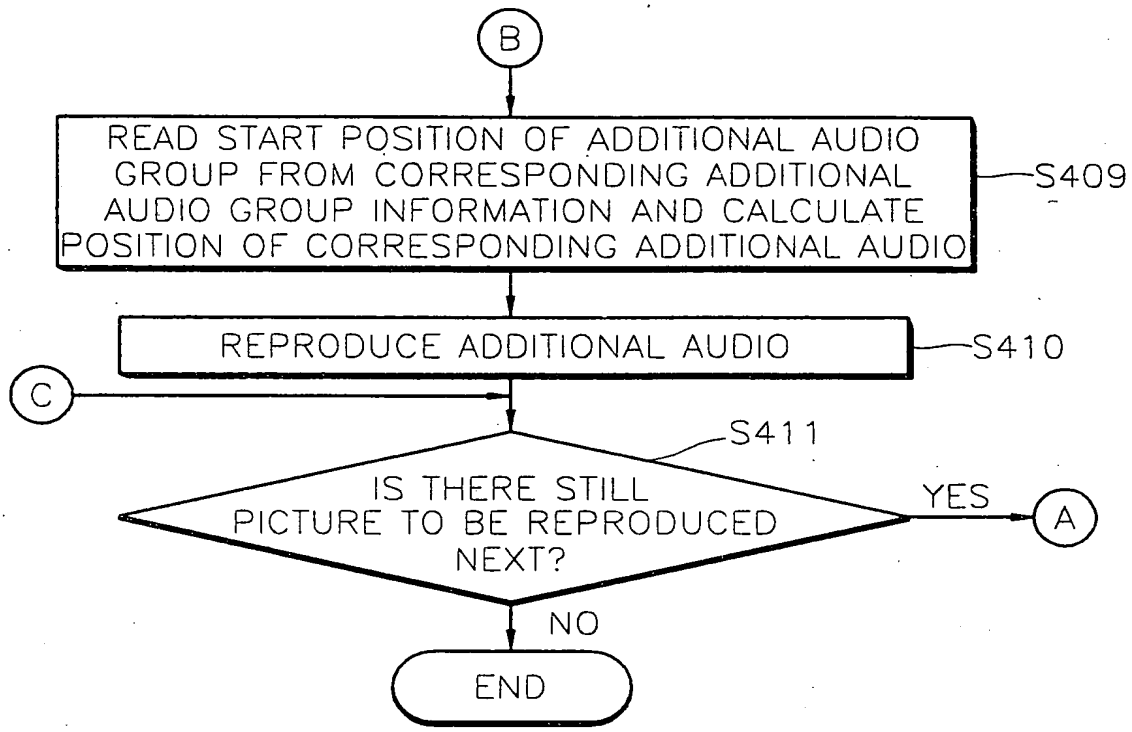

B
READ START POSITION OF ADDITIONAL AUDIO GROUP FROM CORRESPONDING ADDITIONAL AUDIO GROUP INFORMATION AND CALCULATE POSITION OF CORRESPONDING ADDITIONAL AUDIO
S409
REPRODUCE ADDITIONAL AUDIO
S410
C
S411
IS THERE STILL PICTURE TO BE REPRODUCED NEXT?
YES
A
NO
END

FIG. 29

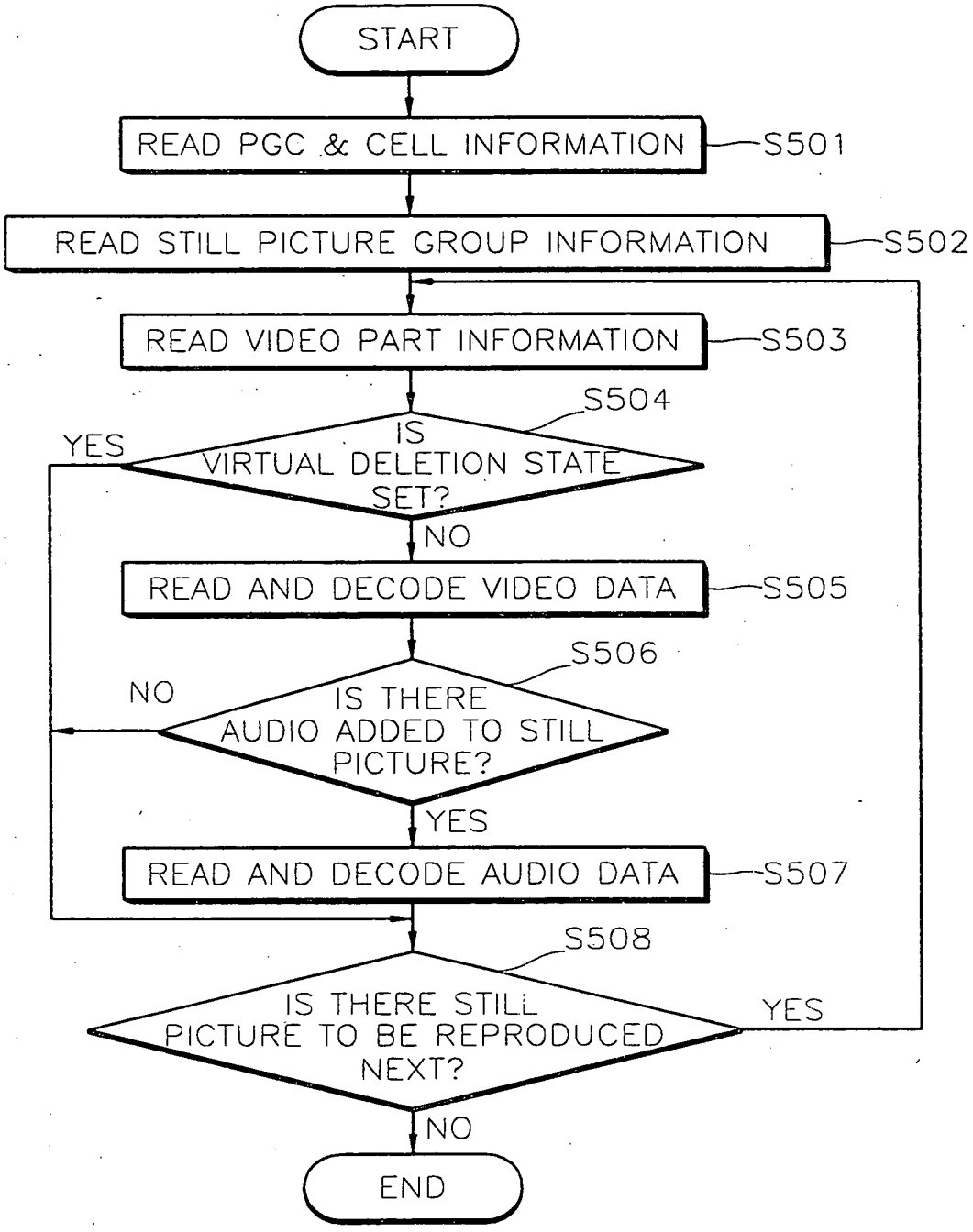

START
READ PGC & CELL INFORMATION
S501
READ STILL PICTURE GROUP INFORMATION
S502
READ VIDEO PART INFORMATION
S503
S504
IS VIRTUAL DELETION STATE SET?
YES
NO
READ AND DECODE VIDEO DATA
S505
S506
IS THERE AUDIO ADDED TO STILL PICTURE?
NO
YES
READ AND DECODE AUDIO DATA
S507
S508
IS THERE STILL PICTURE TO BE REPRODUCED NEXT?
YES
NO
END

FIG. 30A

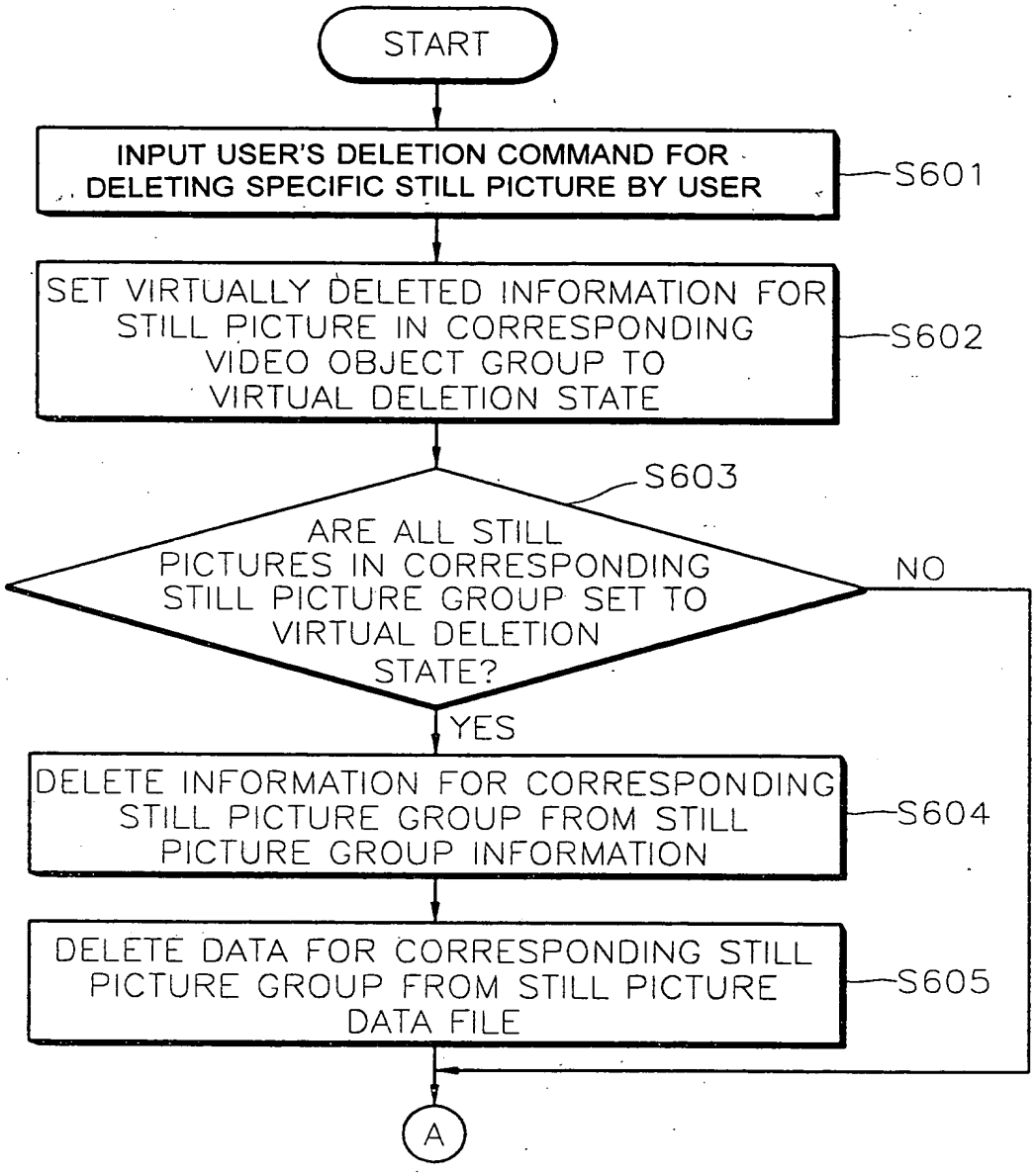
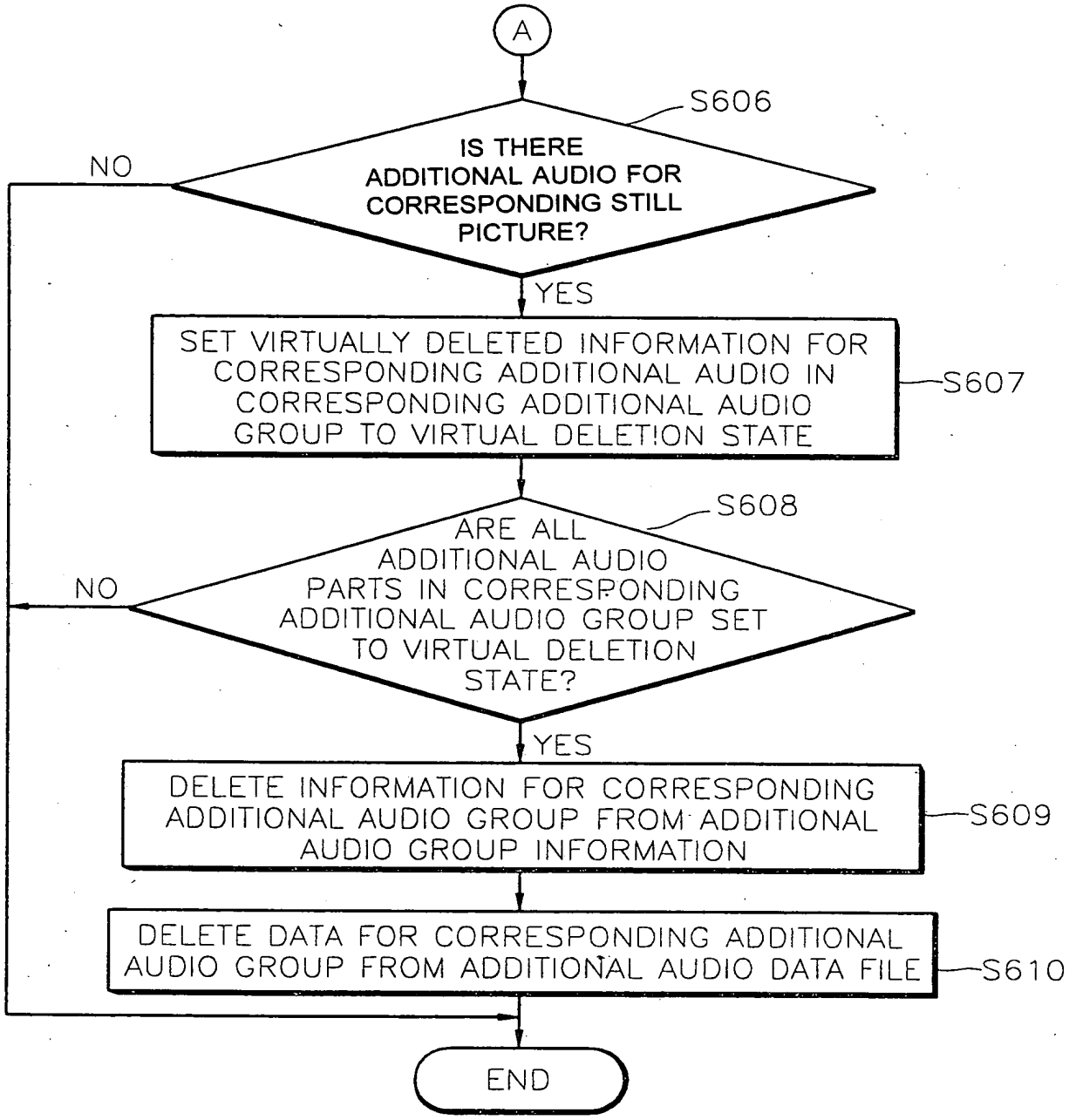

START
INPUT USER'S DELETION COMMAND FOR DELETING SPECIFIC STILL PICTURE BY USER
S601
SET VIRTUALLY DELETED INFORMATION FOR STILL PICTURE IN CORRESPONDING VIDEO OBJECT GROUP TO VIRTUAL DELETION STATE
S602
S603
ARE ALL STILL PICTURES IN CORRESPONDING STILL PICTURE GROUP SET TO VIRTUAL DELETION STATE?
NO
YES
DELETE INFORMATION FOR CORRESPONDING STILL PICTURE GROUP FROM STILL PICTURE GROUP INFORMATION
S604
DELETE DATA FOR CORRESPONDING STILL PICTURE GROUP FROM STILL PICTURE DATA FILE
S605
A

FIG. 30B


A
S606
IS THERE ADDITIONAL AUDIO FOR CORRESPONDING STILL PICTURE?
NO
YES
SET VIRTUALLY DELETED INFORMATION FOR CORRESPONDING ADDITIONAL AUDIO IN CORRESPONDING ADDITIONAL AUDIO GROUP TO VIRTUAL DELETION STATE
S607
S608
ARE ALL ADDITIONAL AUDIO PARTS IN CORRESPONDING ADDITIONAL AUDIO GROUP SET TO VIRTUAL DELETION STATE?
NO
YES
DELETE INFORMATION FOR CORRESPONDING ADDITIONAL AUDIO GROUP FROM ADDITIONAL AUDIO GROUP INFORMATION
S609
DELETE DATA FOR CORRESPONDING ADDITIONAL AUDIO GROUP FROM ADDITIONAL AUDIO DATA FILE
S610
END